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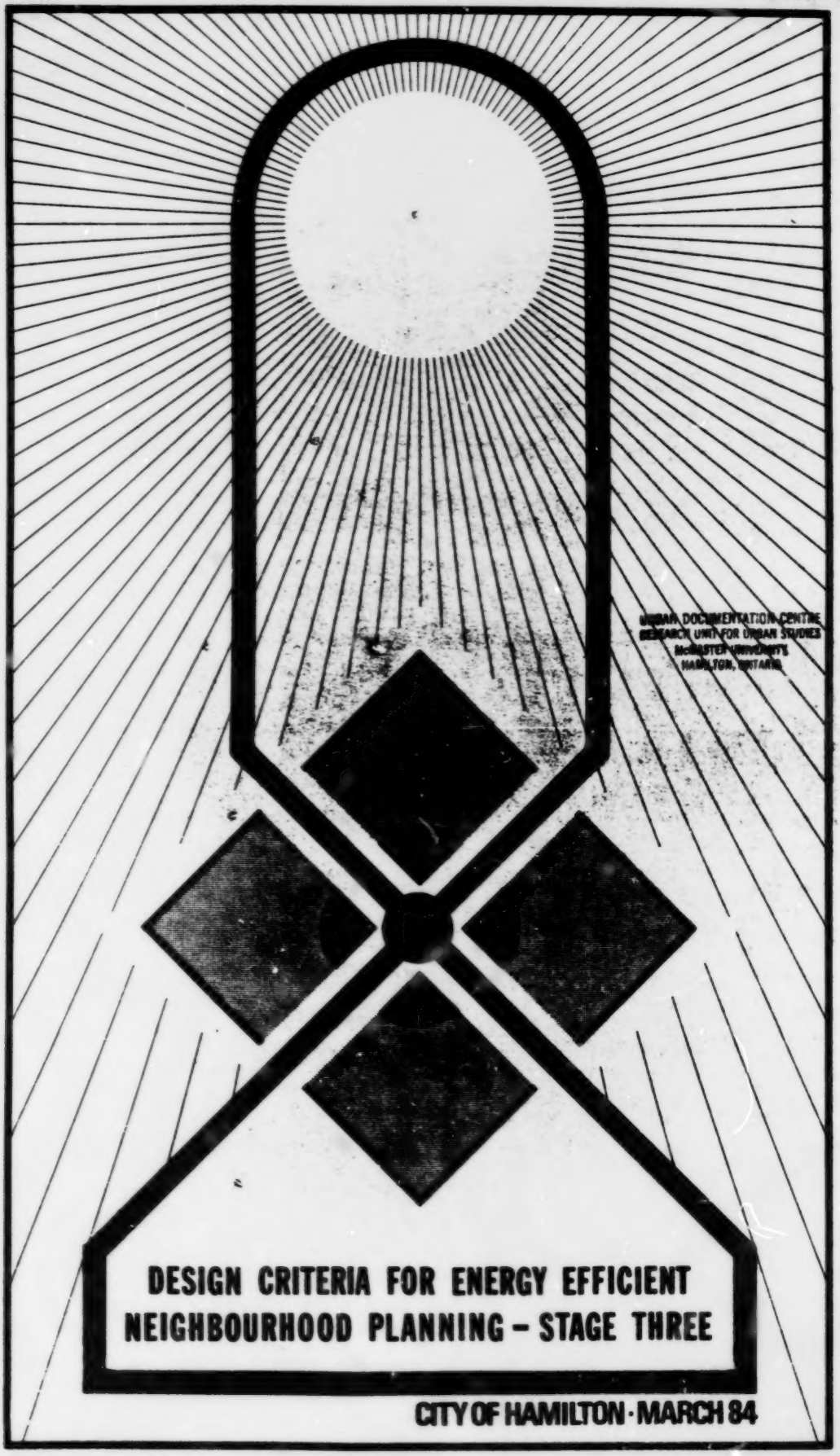

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McMASTER UNIVERSITY
HAMILTON, ONTARIO

DESIGN CRITERIA FOR ENERGY EFFICIENT NEIGHBOURHOOD PLANNING – STAGE THREE

CITY OF HAMILTON · MARCH 84

TABLE OF CONTENTS

		PAGE
1.	INTRODUCTION	1
2.	BACKGROUND	2
	2.1 Hamilton Official Plan	2
	2.2 Ryckman's Multicentre	2
	2.3 Upper James-South Mountain Area Study	2
	2.4 Neighbourhood Planning	2
	2.5 The Ryckmans Neighbourhood	3
3.	PLANNING OPPORTUNITIES AND CONSTRAINTS	5
4.	OBJECTIVES, POLICIES AND ACTIONS	15
	4.1 Introduction	15
	4.2 Energy	15
	4.3 Residential	15
	4.4 Commercial	16
	4.5 Industrial	17
	4.6 Ryckman's Multicentre	17
	4.7 Neighbourhood Services	17
	4.8 Transportation	18
	4.9 Infrastructure	18
	4.10 Vegetation	18
	4.11 Urban Design Features	18
5.	OFFICIAL PLAN AMENDMENT NO 14	24
	5.1 Introduction	24
	5.2 Existing Policies	24
	5.3 Official Plan Amendment No. 14	24
6.	FUTURE PLANNING STAGES	25

LIST OF FIGURES

FIGURE NUMBER	TITLE	PAGE
1	Neighbourhood Planning Process in Undeveloped Neighbourhoods	1
2	The "Jigsaw" Concept	2
3	Ryckmans Multicentre	2
4	Upper James Street - South Mountain Area Study	3
5	Planning Opportunites and Constraints	4
6	Ecochart	6
7	Contour Map	7
8	Contour Map with Base Grid Superimposed	8
9	Slope Gradient Description	9
10	Slope Orientation Description	10
11	Cells of Slope Orientation and Gradient	11
12	Cells with Street Alignment	12
13	Land Use Slope and Gradient Matrix I	13
14	Land Use Slope and Gradient Matrix II	13
15	Preferred Land Use Matrix	13
16	Categories of Space Heating	14
17	Space Heating Mode Matrix	14
18	Option A	20
19	Option B	21
20	Option C	22
21	Option D	23

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Special thanks are also extended to the numerous external advisors for providing us with their comments, criticisms and guidance throughout this study process.

Hamilton-Wentworth Region
Planning and Development Department

March, 1984

1. INTRODUCTION

Having identified a potential role for land use planning in energy conservation, the City of Hamilton, with assistance from the Ontario Ministry of Municipal Affairs and Housing and the Ontario Ministry of Energy, initiated an energy and urban design research study. The 1978 report Energy Considerations in Urban and Regional Planning, helped to stimulate energy awareness in the Hamilton area. In 1981, the City published Planning for Low Density Development - A Solar Approach, which established basic subdivision design parameters.

Design Criteria for Energy Efficient Neighbourhood Planning is an ambitious three stage energy project which was undertaken in direct response to the lack of and need for actual implementation of energy conservation measures in land use planning.

Stage I was published in September, 1982. This stage defined the need for and developed a detailed set of appropriate policies and design criteria for use in the neighbourhood planning process. The report considered local weather conditions and topography and the spatial relationships between natural and man-made environments. Also included in this stage was an inventory and analysis of energy conservation strategies from several North American locations.

Stage II was completed in June, 1983. The policies and methods which were developed in Stage I were verified and refined in Stage II through the design of alternative energy efficient neighbourhood plans for a specific area.

The concepts and methods which were developed in Stages I and II are tested and implemented in Stage III in the Ryckmans land use design concepts Options A, B, C and D. Energy policies based on Stages I and II will be incorporated into the City of Hamilton Official Plan in Stage III.

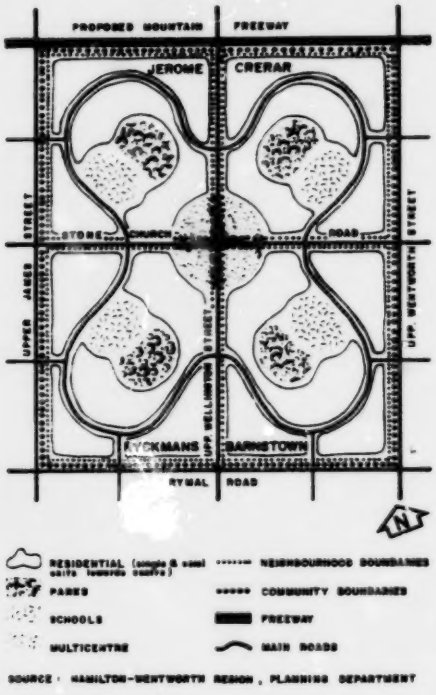
FIGURE 1

NEIGHBOURHOOD PLANNING PROCESS IN UNDEVELOPED NEIGHBOURHOODS

DATA COLLECTION
INHOUSE DATA COLLECTION
• statistics, site surveys, policies
• preparation of background report
• comments from City and Regional Departments and other agencies
PLAN PREPARATION
DRAFT NEIGHBOURHOOD PLAN
• identification of problems with technical departments
• development of goals and objectives
• formulation of alternative plans
• development of proposals and policies
• selection of preferred alternatives
• circulated to City and Regional Departments
• neighbourhood plan revised as required
PUBLIC MEETING APPROVAL
PLANNING AND DEVELOPMENT COMMITTEE
• authorizes public meeting on neighbourhood plan
PUBLIC MEETING
PUBLIC MEETING
• plan presented to all neighbourhood citizens
• written submissions invited from the public
STAFF REVIEW
STAFF REPORT
• final report on plan
• comments on written submissions
PLANNING COMMITTEE REVIEW
PLANNING AND DEVELOPMENT COMMITTEE
• final report presented
• plan approved
COUNCIL ADOPTION
COUNCIL
• adoption of plan
IMPLEMENTATION
IMPLEMENTATION
• official plan
• zoning
• site plan control
• public and private expenditures
• budget

FIGURE 2

THE JIGSAW CONCEPT
CONCEPTUAL PLAN FOR RYCKMANS COMMUNITY



SOURCE: HAMILTON-WENTWORTH REGION, PLANNING DEPARTMENT

2. BACKGROUND

2.1 City of Hamilton Official Plan

The City of Hamilton Official Plan policies encourage a range of residential types and tenures at appropriate scale and density to satisfy the needs of Hamilton's residents. The Plan specifies an ultimate average population density for currently undeveloped and developing areas of the City of 90 persons per hectare or 35 persons per acre.

Official Plan policies promote orderly commercial development which is consistent with community needs. A hierarchy of commercial developments of various types including shopping centres and ribbon or highway commercial areas is recognized and supported by the Plan.

The Official Plan also includes policies for staging of development in the mountain area based on the availability of municipal services. The remaining undevelcped areas of the mountain are designated Stage I, II, and III in the Official Plan. As a general principle, it is anticipated that the development of lands within each stage will be substantially complete before services are extended to lands in the next stage.

2.2 Ryckmans Multicentre

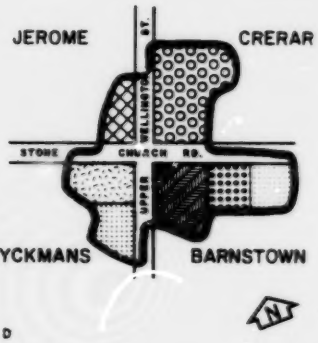
Four neighbourhoods joined together form a community with a population of approximately 20,000. For each community in the developing area of Hamilton, a multicentre is planned. The concept of the multicentre is to provide a focal point for shopping, recreation, entertainment, worship and multi-family living as required by the future population of the community.

The Ryckmans Multicentre is intended as the focal point of the Barnstown, Crerar, Jerome and Ryckmans neighbourhoods. The multicentre plan for Ryckmans was approved by City Council in 1980 and forms part of the approved Crerar and Barnstown Neighbourhood Plans.

The Ryckmans multicentre designates lands at the southwest corner of the intersection of Upper Wellington Street and Stone Church Road East for Civic and Institutional uses and Attached Housing.

FIGURE 3

RYCKMANS MULTICENTRE



LEGEND

- RESIDENTIAL : attached housing
- RESIDENTIAL : medium density apartments
- COMMERCIAL
- CIVIC AND INSTITUTIONAL
- INSTITUTIONAL AND RECREATIONAL
- INSTITUTIONAL AND SPECIAL HOUSING
- MULTICENTRE BOUNDARY

2.3 Upper James-South Mountain Area Study

Ryckmans is located in a nine-neighbourhood area in south-central Hamilton which is currently the subject of a special planning study. The Commercial Market Analysis component of this study is expected to identify: the extent of existing and future demand for commercial development within the study area and the nature and impact of that demand. If a demand is identified, then the necessary amendments to the land use and staging policies of the Official Plan will be initiated. The appropriate changes will also be made to the affected Neighbourhood Plans.

Commercial areas have not been identified on the land use design concepts in Stage III. Instead, areas along Upper James Street and Rymal Road are currently shown as being subject to the Upper James-South Mountain Area Study.

2.4 Neighbourhood Planning

The City of Hamilton Official Plan sets out guidelines for the location of major land uses, population densities, parkland areas, roads and other services. These guidelines serve as the framework for the City's neighbourhood planning program.

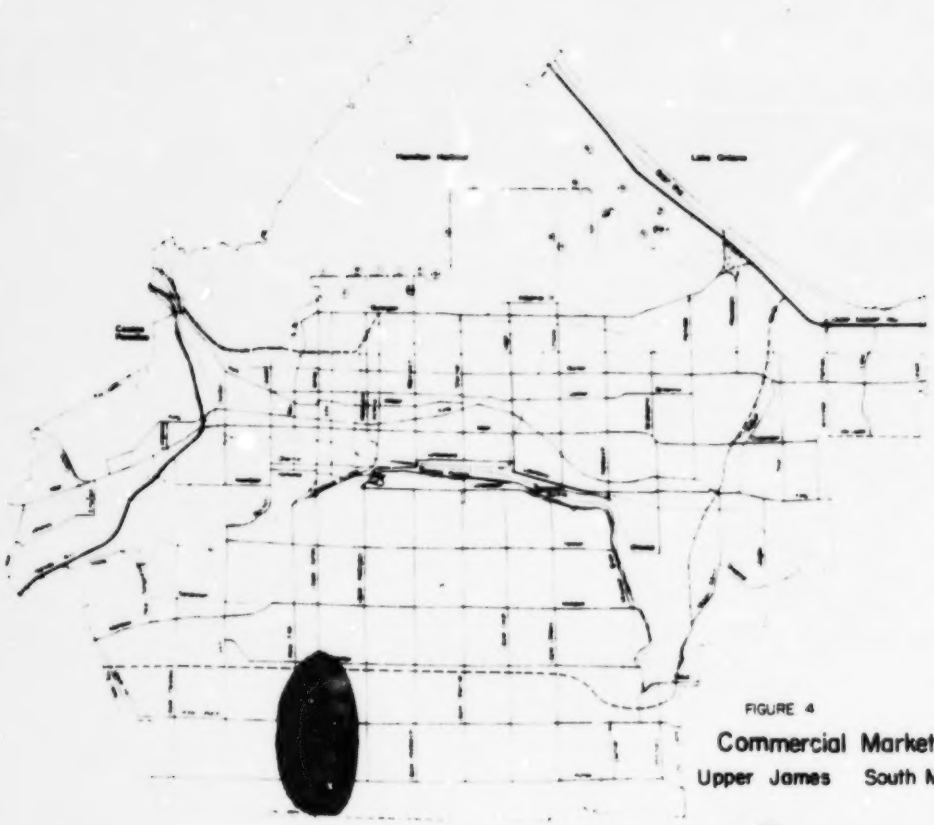


FIGURE 4

Commercial Market Analysis

Upper James South Mountain Study

Study Area

To provide a geographical basis for detailed land use planning, Hamilton has been organized into 137 neighbourhoods. Each neighbourhood is defined by major roads, railways, landforms, and the municipal boundary and is approximately 80 hectares (200 acres) in area.

A Neighbourhood Plan specifying future land uses and internal road layouts is prepared to guide public and private development in order to achieve a desirable neighbourhood environment. Since these plans are approved by City Council and not by other levels of government, a measure of flexibility is maintained at the local level.

The data collection phase of the neighbourhood planning process has been completed. The Ryckmans Neighbourhood Background Report included information on current land use, physical characteristics, population, environmental concerns, municipal services and existing planning controls. This information was analyzed in terms of opportunities and constraints to future development in the neighbourhood.

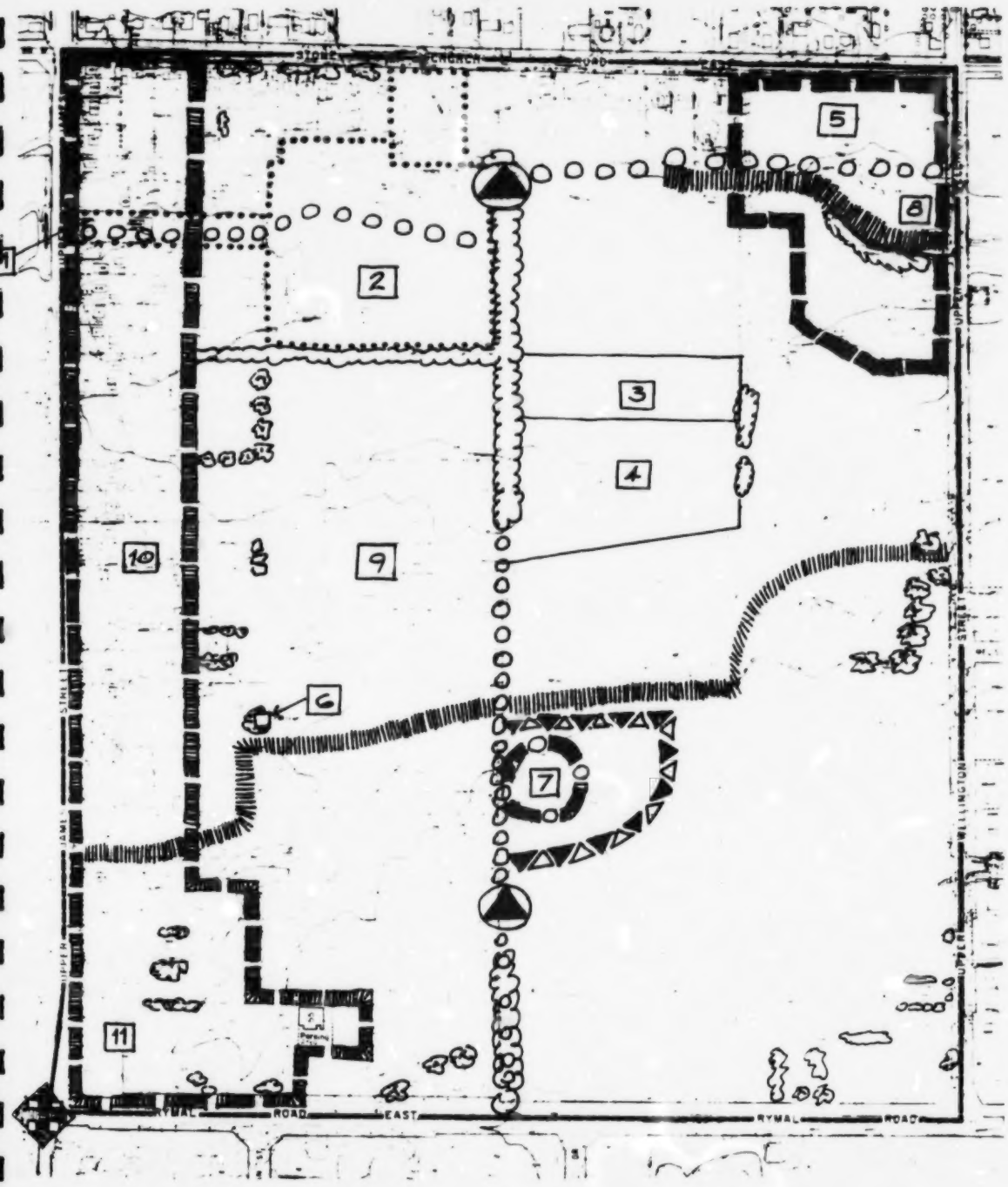
2.5 The Ryckmans Neighbourhood

Ryckmans neighbourhood is located in the south-central area of the City and is bounded by Upper James Street, Stone Church Road, Upper Wellington Street and Rymal Road.

The neighbourhood is rectangular in shape and approximately 79 hectares or 195 acres in area. Along Upper James Street, a mixture of highway commercial and single-family residential uses has developed on deep, narrow lots. Portions of the frontage of Stone Church and Rymal Roads have also been developed for residential use on large lots. The eastern half of the neighbourhood is mainly undeveloped vacant land and agricultural land, with the exception of a few single-family residences.

The predominant land use in the Ryckmans neighbourhood in terms of land area is agriculture. Approximately 30.4 hectares (75.1 acres) or 38.5 percent of the total land area is in agricultural use. The second largest land use is residential with 21.6 hectares (53.5 acres) and 27.3 per cent of the total land area. Open space, including public open space, cemeteries, and undeveloped or vacant lands, accounts for 21 percent of the land area with 16.6 hectares (40.9 acres).

Retail commercial uses on six separate properties occupy 8.3 hectares (20.5 acres) or 7.5 percent of the total land area.



LEGEND

1. BARTON COMMUNITY CENTRE
2. BARTON COMMUNITY PARK
3. CITY OF HAMILTON PROPERTY
4. HAMILTON BOARD OF EDUCATION PROPERTY
5. ROMAN CATHOLIC EPISCOPAL CORPORATION PROPERTY
6. CITY OF HAMILTON CEMETERY
7. OLMSTEAD INDIAN VILLAGE
8. EYCKMANS MULTICENTRE
9. INTERIOR PORTIONS OF RESIDENTIAL LOTS
10. EXISTING RESIDENCES
11. EXISTING COMMERCIAL AREA

FOCAL POINT/CROSSROADS ENTRANCE TO HAMILTON

SEWER EASEMENT

PEDESTRIAN/BICYCLE PATHWAYS

MATURE TREES

UPPER JAMES STREET SOUTH MOUNTAIN AREA COMMERCIAL STUDY AND CORRIDOR LANDSCAPING AND DESIGN

NEIGHBOURHOOD LANDMARKS

EYCKMANS MULTICENTRE

EYCKMANS NEIGHBOURHOOD PLANNING OPPORTUNITIES AND CONSTRAINTS

FIGURE 5

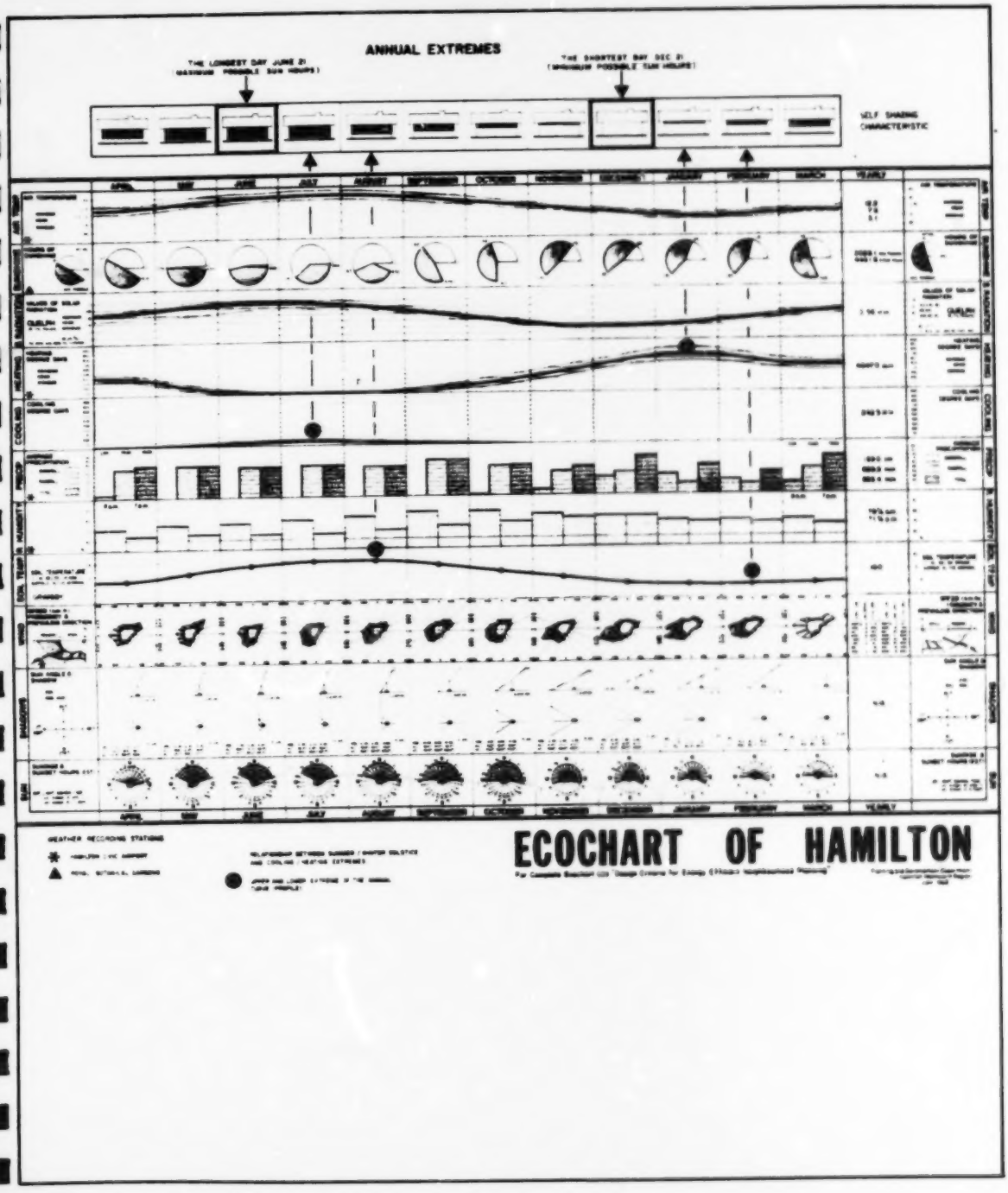
A single property is classed as an association office and occupies 0.8 hectares or 1.9 acres. One property in the neighbourhood is classified as storage and warehousing. This site is 0.8 hectares (1.9 acres) in area. These two categories each account for about one percent of the neighbourhood's land area.

The Barton Community Centre is the only property classified as institutional. The Community Centre site is 0.5 hectares (1.3 acres) in size and approximately 0.7 percent of the total area.

3. PLANNING OPPORTUNITIES AND CONSTRAINTS

Several important opportunites and constraints for planned development in the Ryckmans neighbourhood emerged from the Background Report. These are listed below, but not ranked in order of priority.

- Residential development of the neighbourhood's interior to a suitable variety of housing types in locations which maximize energy conservation and transportation opportunities without compromising existing residential development.
- Opportunities for conservation of desirable vegetation.
- Opportunities for designing a well-planned neighbourhood environment which emphasizes Ryckmans' unique features and integrates the Barton Community Centre and Park, Olmstead Indian Village and school site.
- Development and future roles of the Ryckmans multicentre.
- Designing around existing and future combined storm/sanitary sewer alignments.
- Designing for energy-efficiency in transportation and space heating.
- Potential for commercial development along Upper James Street to take advantage of new municipal sanitary sewers and transportation advantages including proximity to the Mount Hope airport.
- Standards for ribbon commercial development.
- Need for additional, neighbourhood-oriented commercial facilities.
- Jurisdictional arrangements and responsibilities for conservation of the Olmstead Indian Village.
- Future re-development of the Barton Community Centre and Park to meet the needs of Ryckmans and surrounding neighbourhoods.

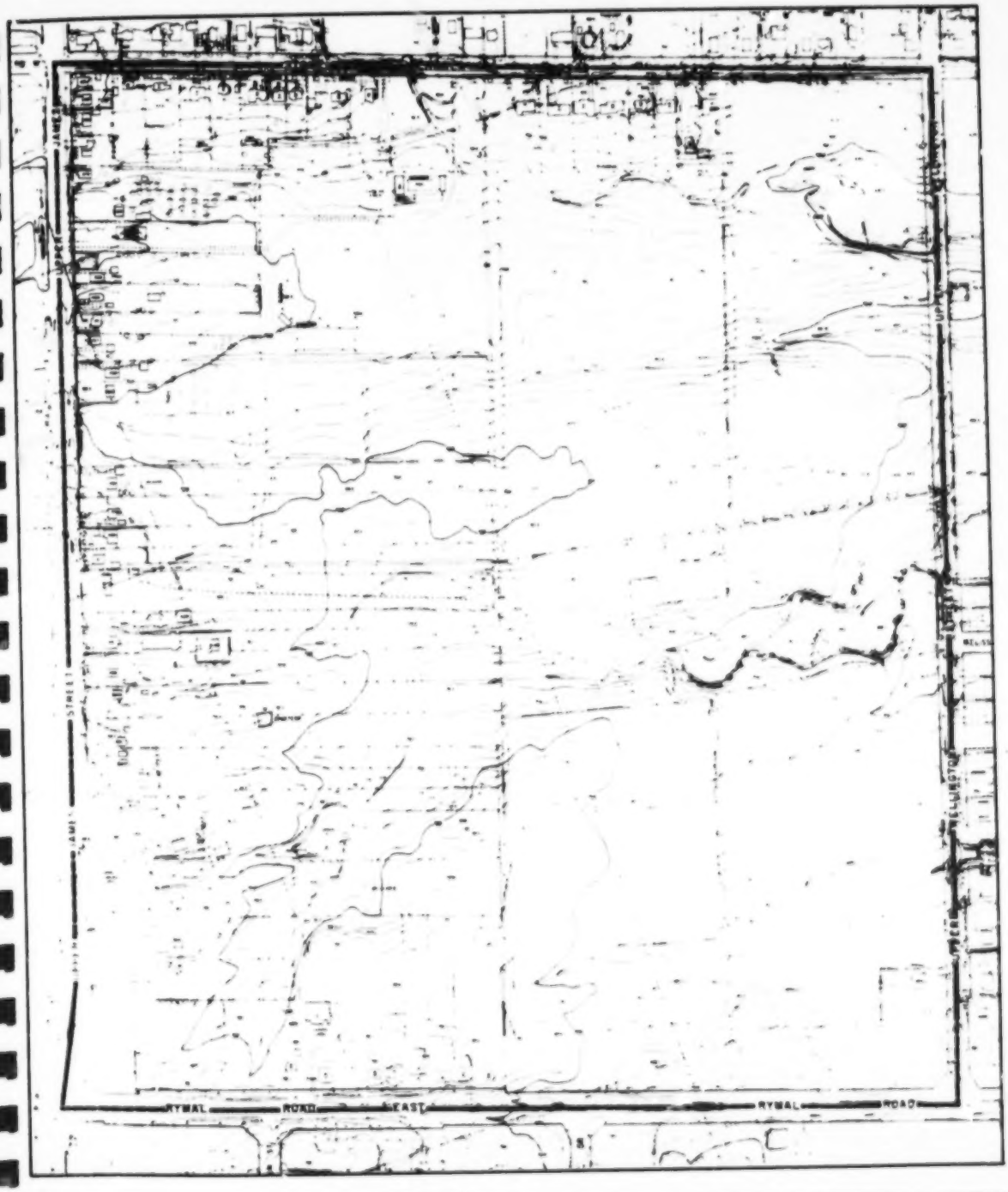


The energy-efficient neighbourhood design process began with the Ecochart. The top portion of the Ecochart presents an ecological description of Hamilton which contains a graphic representation and description of the City's topography and a tabulation of local climatic data. The lower portion of the Ecochart indicates the relationships among several environmental factors such as air temperature, hours of sunshine and sun angle and shadow. Analysis of these relationships helps to determine the potential for energy conservation of various land uses in any given location.

Even a cursory review of the Ecochart reveals our two climatic extremes - summer and winter. While the summer extremes are uncomfortable, coping with winter extremes is a matter of survival. The Ecochart's message to the planner is that space heating requires more energy than space cooling and therefore, planning for our cold season should be our main concern.

DESIGN CRITERIA FOR ENERGY EFFICIENT NEIGHBOURHOOD PLANNING - STAGE THREE

FIGURE 6

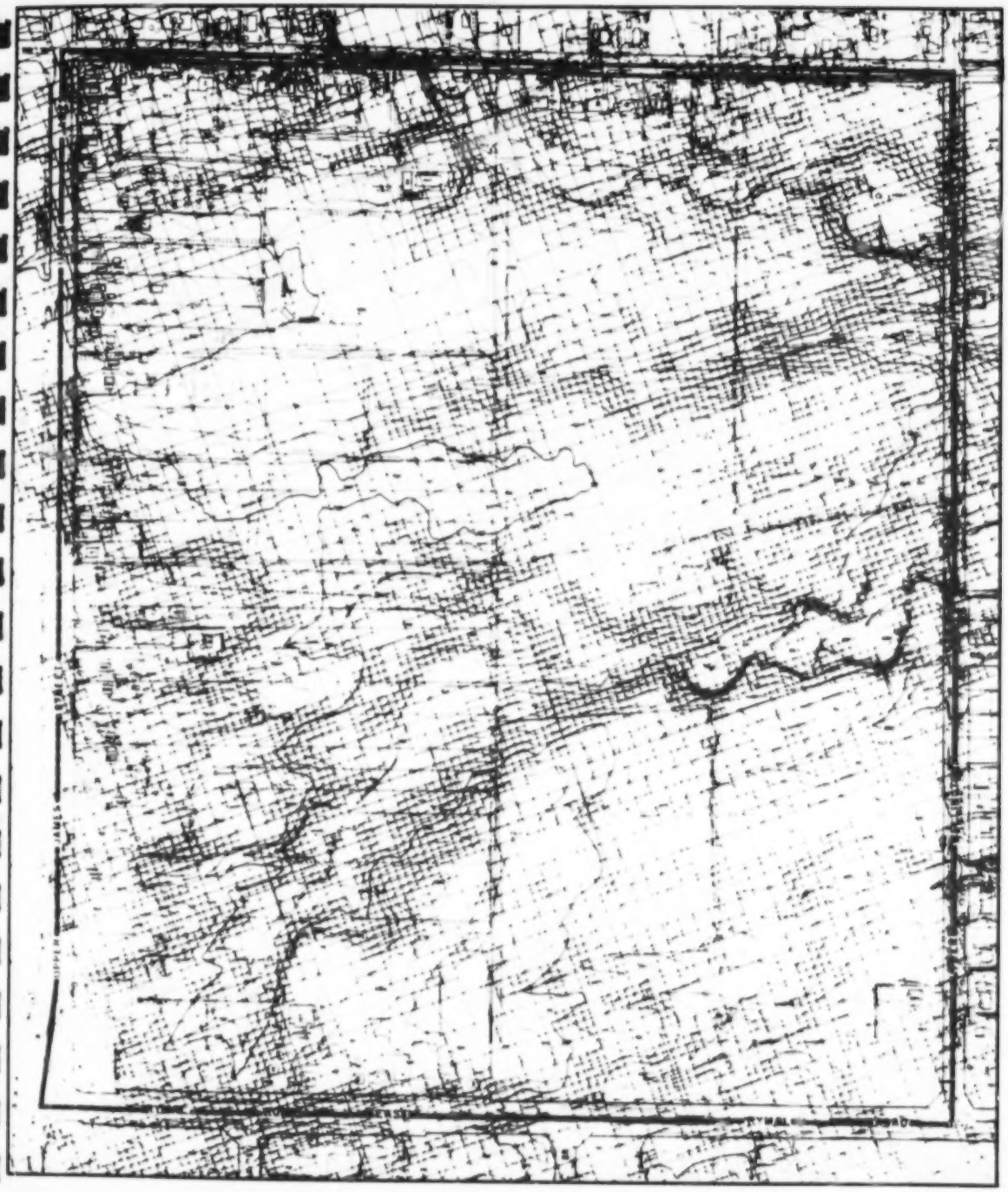


The contour map is the first step in the development of the slope descriptive synthesis. The individual contour lines connect points of equal elevation at intervals of 2.5 feet. While the contour map shows elevation and surface configurations, it does not show slope orientation in a form which provides the planner with specific instructions regarding neighbourhood design. The next four figures describe the transformation of the conventional contour map into a more useful information base.

CONTOUR MAP

DESIGN CRITERIA FOR ENERGY EFFICIENT NEIGHBOURHOOD PLANNING - STAGE THREE

FIGURE 7



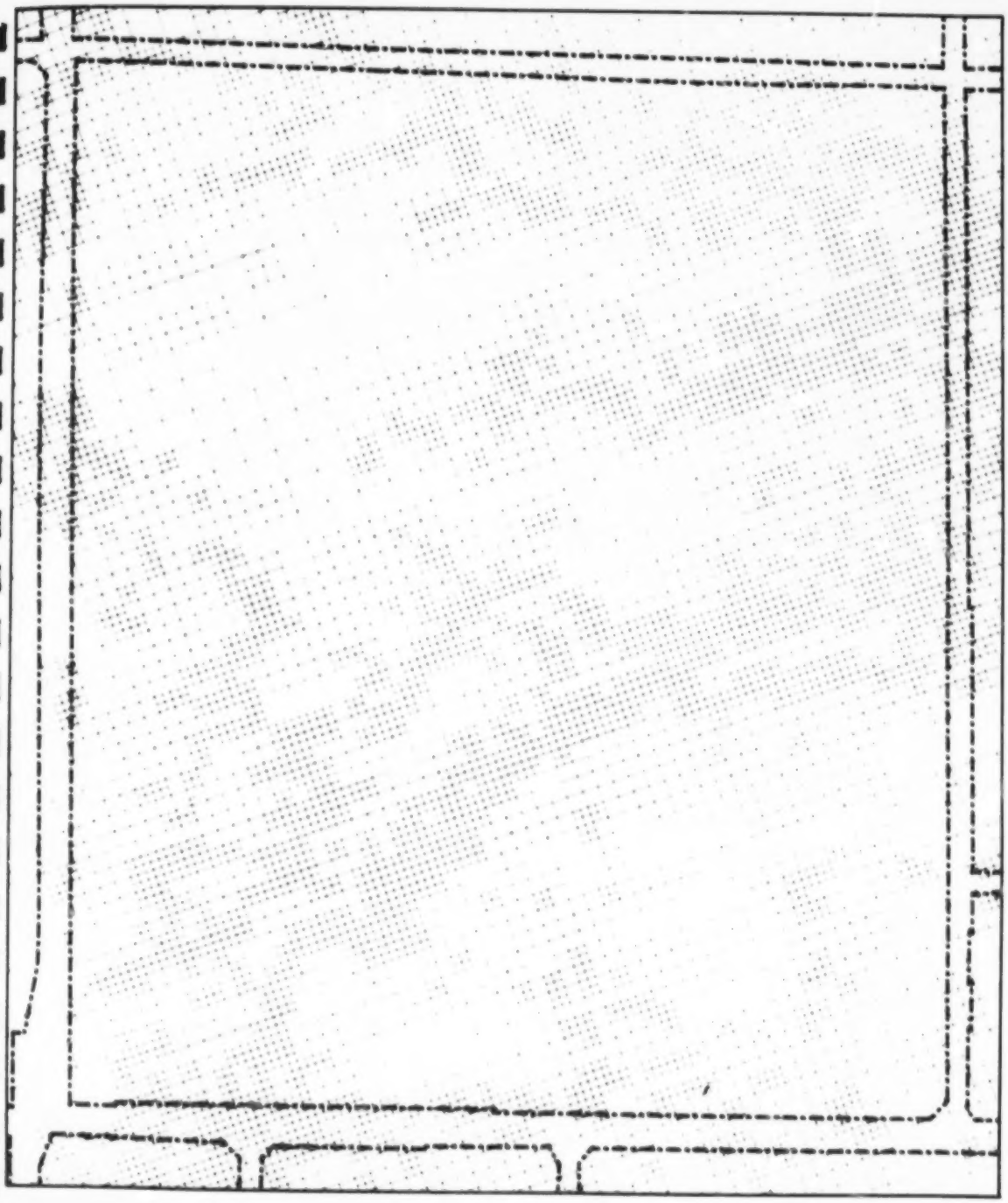
A base grid of 200-foot squares was superimposed on the contour map. This base was then further subdivided into four percentage categories ranging from less than 2.5% slope to greater than 10% slope. While fewer or more categories could have been used, these four categories were considered appropriate given the limited range of gradient in the Ryckmans neighbourhood. The grid is oriented toward solar, not magnetic, north.

CONTOUR MAP WITH BASE GRID SUPERIMPOSED

DESIGN CRITERIA FOR ENERGY EFFICIENT NEIGHBOURHOOD PLANNING - STAGE THREE

PREPARED FOR THE CITY OF HAMILTON BY THE PLANNING AND DEVELOPMENT DEPARTMENT OF THE REGIONAL MUNICIPALITY OF HAMILTON-WENTWORTH

FIGURE 8



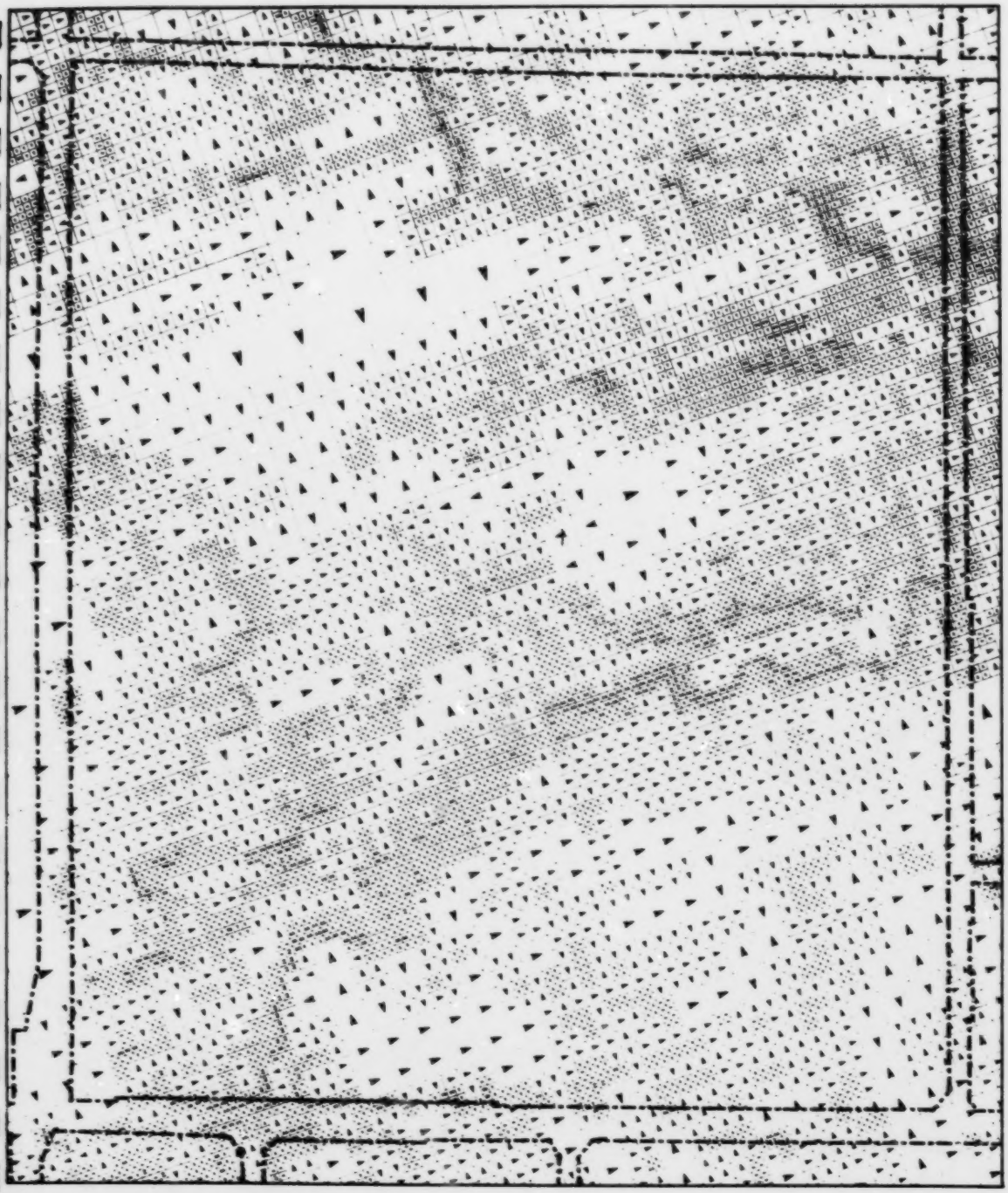
With the contour lines removed, we are left with a description of the land form which is similar to the description which can be "seen" by a computer. The different sizes of squares represent varying degrees of slope. Slope of the land increases as the squares decrease in size. As shown in the Land Use Slope and Gradient Matrix I, individual land use ranging from single family residential to multiple residential and through to parks and open space may be matched to the squares of slope gradient. For example, single family development is best suited to the larger squares which represent relatively flat land while smaller squares which represent steeper areas are suited to park and open space uses.

SLOPE GRADIENT DESCRIPTION

DESIGN CRITERIA FOR ENERGY EFFICIENT NEIGHBOURHOOD PLANNING - STAGE THREE

PREPARED FOR THE CITY OF HAMILTON BY THE PLANNING AND DEVELOPMENT DEPARTMENT OF THE REGIONAL MUNICIPALITY OF HAMILTON-WENTWORTH

FIGURE 9



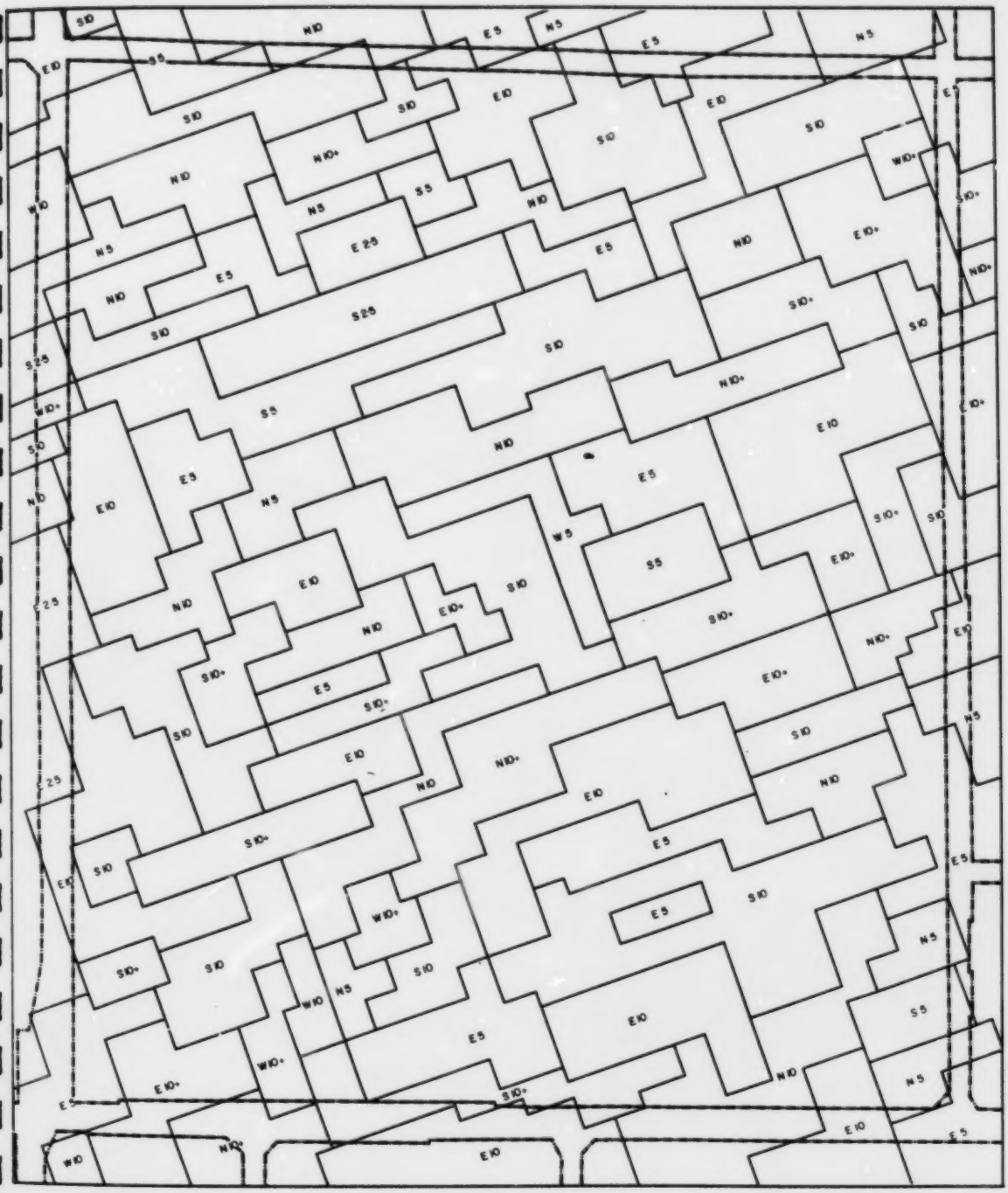
The next step was to determine and map the orientation of each of the slope gradient squares. Arrows are used to show the four categories of slope orientation ranked in order from greatest to least solar energy receivership: south, west, east and north. As in the previous figures, orientation is toward solar, not magnetic, north.

SLOPE ORIENTATION DESCRIPTION

DESIGN CRITERIA FOR ENERGY EFFICIENT NEIGHBOURHOOD PLANNING - STAGE THREE

PREPARED FOR THE CITY OF HAMILTON BY THE PLANNING AND DEVELOPMENT DEPARTMENT OF THE REGIONAL MUNICIPALITY OF HAMILTON-WENTWORTH

FIGURE 10



This figure also presents the planner with a set of instructions regarding land use as shown on Land Use Slope and Gradient Matrix II. Areas with higher solar energy receivership are suitable for lower density residential development. Where the available solar energy is reduced by slope orientation, higher density residential, commercial and institutional uses are more appropriate.

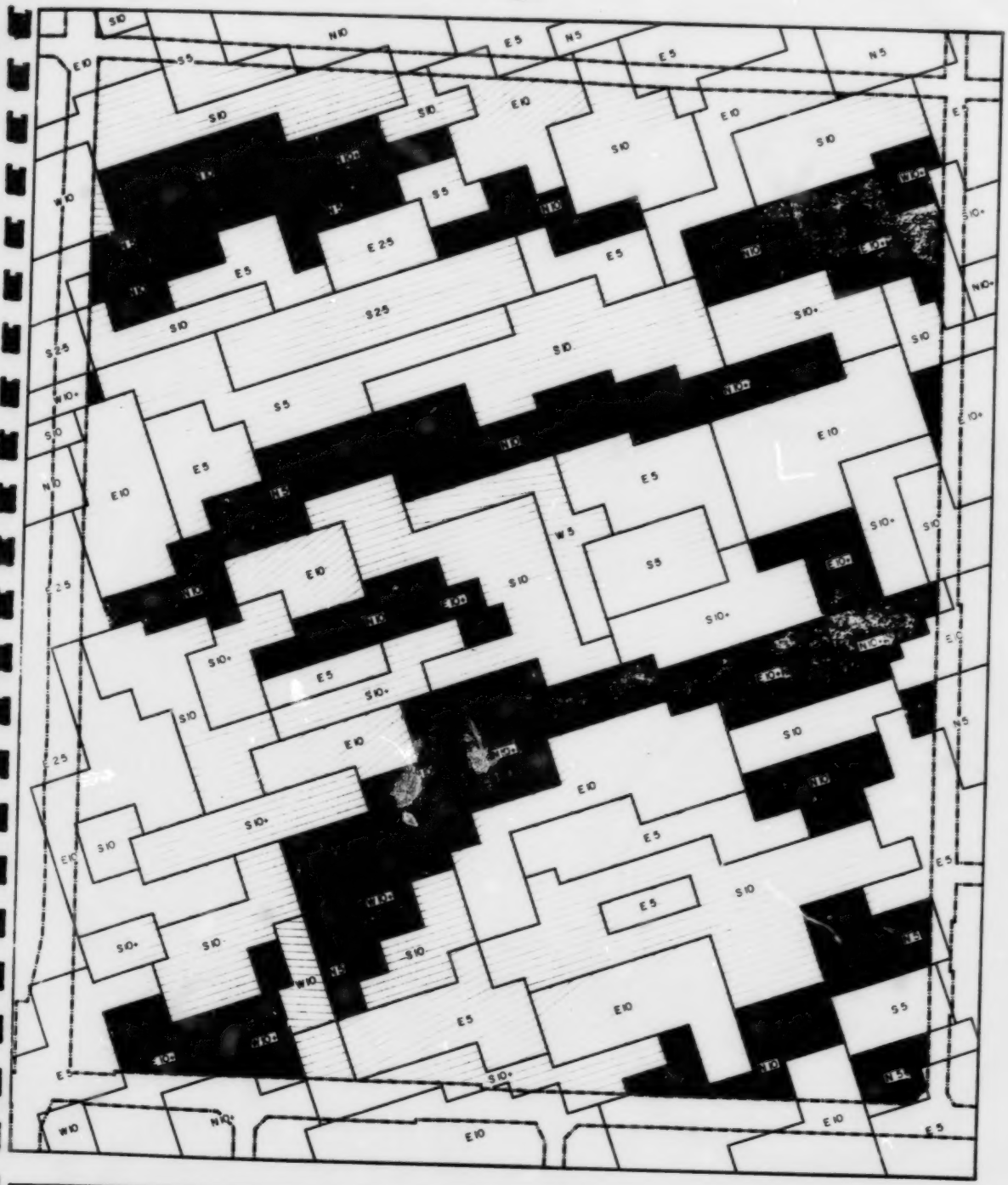
Grid squares having similar slope orientation and gradient were then grouped into cells of land and labelled accordingly. For example, cells labelled "E5" have lands which slope to the east at a gradient of 2.5 to 5 per cent. These cells are irregular in shape, but are drawn using solar north-south and east-west lines only. Ryckmans neighbourhood is divided into approximately 80 cells, ranging in size from approximately 0.37 hectares (0.9 acres) to 1.9 hectares (4.6 acres).

CELLS OF SLOPE ORIENTATION AND GRADIENT

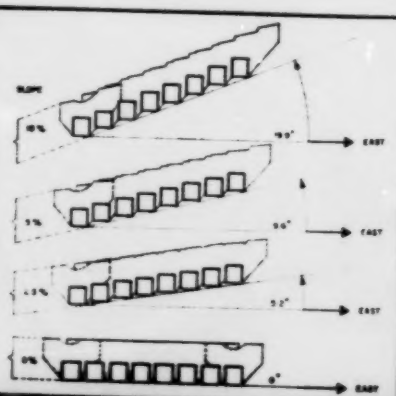
DESIGN CRITERIA FOR ENERGY EFFICIENT NEIGHBOURHOOD PLANNING - STAGE THREE

PREPARED FOR THE CITY OF HAMILTON BY THE PLANNING AND DEVELOPMENT DEPARTMENT OF THE REGIONAL MUNICIPALITY OF HAMILTON-WENTWORTH

FIGURE 11



Since the design of lots and the placement of structures are largely determined by the street pattern, it was essential to develop a design methodology where the street alignment ensures optimum solar access on slopes of east and west orientation. The street alignment angles are then superimposed on the cells of slope orientation and gradient. The actual neighbourhood street pattern incorporates these alignments where possible. Through the inclusion of consideration of slope orientation and gradient, this method improves on the "first generation" energy conservation subdivision designs which promoted a standard east-west street alignment for solar access regardless of topography.



CELLS WITH STREET ALIGNMENT

DESIGN CRITERIA FOR ENERGY EFFICIENT NEIGHBOURHOOD PLANNING - STAGE THREE

PREPARED FOR THE CITY OF HAMILTON BY THE PLANNING AND DEVELOPMENT DEPARTMENT OF THE REGIONAL MUNICIPALITY OF HAMILTON-WENTWORTH

FIGURE 12

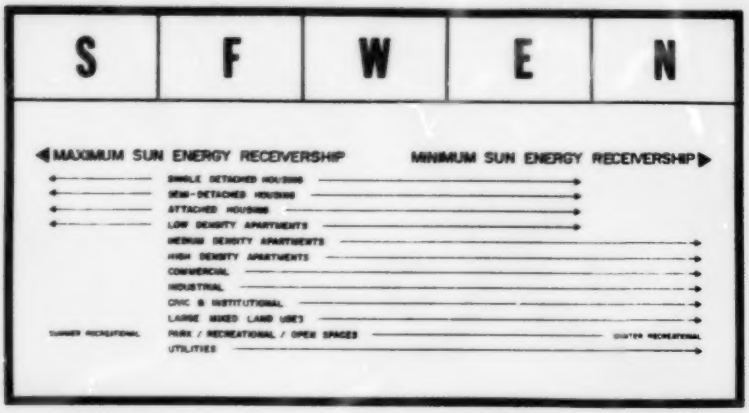


FIGURE 13

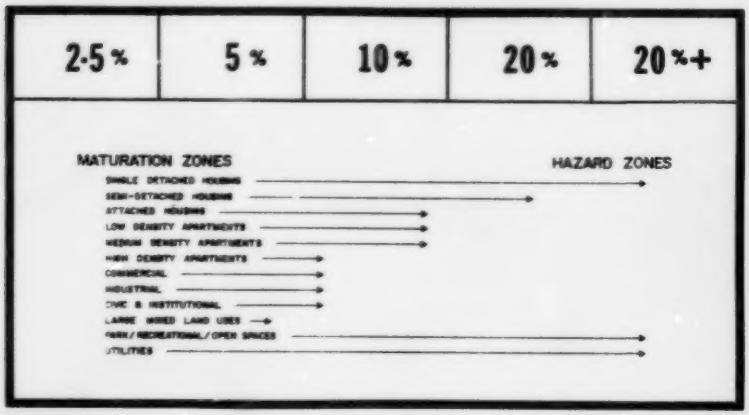


FIGURE 14

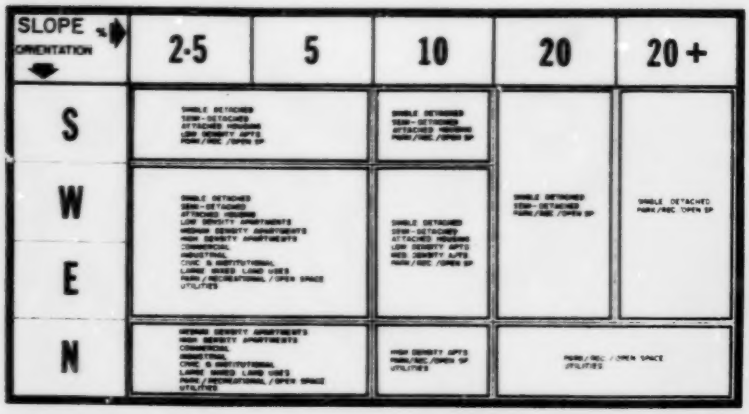


FIGURE 15

Slope orientation and gradient information was translated into preferred or most energy-efficient land use types using the three matrices shown above. The selection of preferred land uses is based on the planned expansion and intensification of permitted uses (slope gradient) and on the amount of solar energy which is received (slope orientation). For example, east and west slopes of five per cent or less have the widest variety of appropriate land uses ranging from single detached residential through to high density residential and mixed land uses. In contrast, northern slopes of greater than ten per cent are best suited to parks, recreation, open space, and utilities.

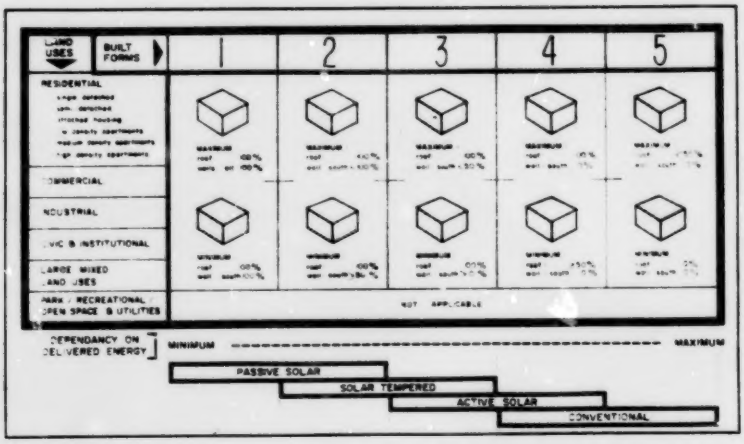


FIGURE 6

SLOPE % / ORIENTATION	2·5	5	10	20	20+
S	2	1	1	1	1
W	2	2	2	3	4
E	2	2	2	3	4
N	2	3	4	5	5

FIGURE 7

The first figure shows the preferred space heating modes or methods for residential and non-residential buildings. The preferred mode varies in response to the amount of solar energy which is available. Increases in the amount of solar energy which is utilized in space heating will result in corresponding decreases in the dependancy on conventional energy sources. To determine the appropriate space heating mode for a given site, the slope code from the individual cells is compared to the space heating mode matrix. For example, the code of E5 results in a classification of II. As shown on the second figure, residential construction within this classification would ideally include passive solar and solar tempered features. When space heating modes are matched to the environmental conditions of the neighbourhood, solar access is maximized and the energy penalties common to conventional subdivision design are reduced. In the short space available here, it is impossible to describe the complete design process. Readers wishing further background should consult Design Criteria for Energy Efficient Neighbourhood Planning, Stages I and II.

4. OBJECTIVES, POLICIES AND ACTIONS

4.1 Introduction

In addition to the general policies already included in the Hamilton-Wentworth Official Plan and the City of Hamilton Official Plan, the following objectives, policies and actions have been prepared specifically to guide future development in the Ryckmans neighbourhood.

The objectives represent an ideal environment or quality of life. Policies define a course of action based on the preferred responses to planning opportunities and constraints which were selected from a range of alternatives.

The objectives and policies are followed by lists of specific actions which are needed for their implementation.

The objectives, policies and actions have been grouped according to the land use categories which were discussed in the Background Report. Each set of policies pertains to an individual land use designation as land use Options A, B, C and D. Additional policies are also included for energy conservation throughout the neighbourhood.

The objectives, policies and actions presented here relate most strongly to the last design concept Option D, but are also applicable to Options B and C in most cases. Option A was designed prior to the preparation of the energy-efficient design criteria and, as a result, many of the objectives, policies and actions do not pertain to this option.

Neighbourhood Plans are intended to be interpreted with flexibility. Minor changes in land use boundaries or designations may be permitted without an amendment to the Plan. Major changes in the distribution or intensity of land uses which alter the character of the neighbourhood would require amendments to be adopted by City Council with full public participation. Where changes are proposed that do not impact on other land uses or affect only one or two other properties, these changes may be made in consultation with those affected and the changes made in the normal way through the Planning and Development Committee and Council.

4.2 Energy Conservation

Objective

The Ryckmans neighbourhood will be designed to encourage residents to live in proximity to activity and employment centres through the development of multiple-purpose land uses.

Policies

1. Mixed land uses such as commercial and residential will be encouraged to locate in areas fronting onto the arterial road system.

2. Increased density of all land uses and particularly mixed or multiple use developments will be encouraged.

3. Employment opportunities in the neighbourhood, including some home occupations, will be encouraged.

4. Residential plans of subdivision will be designed to achieve the overall residential density specified in the Official Plan.

5. Combined use of public and institutional facilities such as schools and parks will be encouraged.

6. Neighbourhood commercial uses will be encouraged to locate in areas which are convenient to the neighbourhood residents.

7. Intensification and diversification of existing uses will be permitted as the neighbourhood matures. Generally, intensification will be encouraged around the neighbourhood's perimeter and limited in interior areas.

Actions

1. Appropriate zoning categories and specifications will be established for residential and other land uses concurrent with neighbourhood development.

2. The City will consider a study of mixed use development and new home occupations, including computer-related businesses.

3. The City will continue to provide information and assistance regarding energy conservation to the private sector.

4. Where necessary, residential plans of subdivision will be redesigned in order to achieve the overall residential density of approximately 90 persons per gross hectare of Residentially-designated land.

5. In implementing zoning by-laws for individual residential subdivisions, building setbacks will be established in order to reduce "shadowing" and promote variety in streetscapes.

4.3 Residential

Objective 1

1. The Ryckmans Neighbourhood will be developed for an appropriate mixture of residential types and densities. The interior of the neighbourhood will be developed predominantly for low density residential uses. Higher density residential development will be located around the neighbourhood's perimeter, especially along the north/south arterial roads.

Policies

1. Higher density residential development will be located adjacent to the arterial roads, and particularly to Upper James Street and Upper Wellington Street to take advantage of present and future transportation and transit facilities.

2. Medium density residential uses in the neighbourhood's interior will be located adjacent to the collector road.

3. An area of attached housing will be developed on Upper Wellington Street near the intersection of Upper Wellington and Stone Church Road in the Ryckmans multicentre.

Actions

1. No lands will be prezoned for residential development.

2. Areas of high, medium and low residential land use will be established through the land development process.

Objective 2

The potential negative impacts which new residential development may have on existing residential areas will be minimized through the planning process.

Policies

1. Where new residential development is proposed adjacent to existing housing, similar lot sizes and building types will be encouraged.

2. Existing housing stock will be retained.

3. Resubdivision of side yard and rear yard areas of existing large residential lots to facilitate residential infilling will be encouraged. Creation of new residential lots will be carefully controlled in order to minimize their potential negative impacts on the arterial road system.

Actions

1. The internal street system will be designed to permit resubdivision of rear yard areas of existing residential properties.

Objective 3

New residential development will be encouraged to take advantage of the passive solar energy opportunities which are available in the Ryckmans neighbourood's topography, microclimate and vegetation.

Policies

1. Streets should be designed with an east-west orientation modified to take advantage of the existing topography to provide optimum passive solar access.

2. Individual residential structures should be oriented toward the south to provide optimum solar access.

3. Deciduous trees to be planted on the south side of the individual houses to allow the winter sun to warm the house. Coniferous or evergreen trees should be planted on the north sides of houses to act as windbreaks. This tree planting pattern should include municipal lands where necessary.

4. Increased lot widths will be permitted on lots fronting onto north-south streets to reduce shadowing between adjacent buildings.

Actions

1. Residential plans of subdivisions and site plan agreements for residential development will have regard for energy efficiency. Subdivisions and site plans should include details on:

   - streets, lots, building orientation, solar access, shadow patterns, wind flows, snow drifting, and their effects on adjacent lands.

2. Redesign of lapsed plans of subdivision to incorporate energy conservation measures will be encouraged.

3. Subdivision designs which minimize regrading and take advantage of existing topography will be promoted.

4. The internal street system will be created through approvals of plans of subdivision.

5. Developers will be informed of the advantages of land use and space heating types which have been identified for the Ryckmans neighbourhood.

Objective 4

The energy efficiency of the Ryckmans Neighbourhood will be improved through modification of inappropriate development standards.

Policies

1. Development of homes that may be easily partitioned to create extra dwelling units will be permitted.

2. Innovative housing types including "flag" lots, small-lot and zero-lot line single family dwellings and earth-sheltered housing will be encouraged.

3. Sidewalk standards may be modified to meet actual needs. Where pedestrian/bicycle pathways are provided, sidewalks may be unnecessary.

Actions

1. The City, in co-operation with interested developers and/or builders will investigate cost-sharing arrangements with senior levels of government in order to construct one or more of the innovative housing types mentioned above.

2. In implementing zoning by-laws for individual residential subdivisions, minimum front yard setbacks of 4.6 metres and 3.0 metres will be permitted for residential lots fronting onto road allowances of 20 metres and 15 metres respectively where side yard parking is available.

4.4 Commercial

Objectives

Retail, office, and highway commercial uses will be located adjacent to the arterial roads. Neighbourhood-oriented commercial facilities will be located in areas which are convenient to future residents in order to minimize the energy expended in travelling to and from these commercial facilities.

Policies

1. Existing highway commercial areas and the remaining lands along Upper James Street will not be identified for specific land uses including commercial uses in any of the design concepts at this time. These areas will be identified for various uses including commercial in the Ryckmans Neighbourhood Plan following the completion of the Upper James-South Mountain Area Study.

2. Small-scale neighbourhood or convenience-type commercial facilities which are oriented to the needs of future neighbourhood residents may also be permitted in locations specified by the Upper James-South Mountain Area Study.

3. Airport-related commercial uses such as accommodation, transportation and storage will be considered on an individual basis.

Actions

1. No lands will be prezoned for commercial development.

2. The Ryckmans Neighbourhood Plan will be prepared following the completion of the Upper James-South Mountain Area Study in order to integrate future commercial and non-commercial uses.

3. The City will initiate Official Plan amendments, where required, for commercial development as identified by the Upper James-South Mountain Area Study.

4. The City will establish appropriate commercial zoning categories, specifications and design standards for commercial uses in co-operation with property owners.

4.5 Industrial

Objective

Industrial uses are not planned for the Ryckmans Neighbourhood. However, mixed commercial-industrial developments or industries which are compatible with commercial and residential uses will be considered for approval on an individual basis.

Policies

1. No lands in the Ryckmans neighbourhood will be identified as Industrial in the design concepts or pre-zoned for Industrial use.

Actions

1. Industrial proposals including home industries will be held in abeyance pending completion of the mixed land use study mentioned in Section 4.2.

4.6 Ryckmans Multicentre

Objective

The Ryckmans neighbourhood portion of the Ryckmans multicentre will be developed for institutional and medium density residential uses.

Policies

1. Institutional uses will be developed in the neighbourhood's north-east corner.

2. Attached housing will be permitted to the south of the institutional area.

3. Lands in the Jerome, Crerar and Barnstown neighbourhoods at the intersection of Stone Church Road East and Upper Wellington Street will be developed for multi-centre uses including institutional, medium density residential, and recreational.

Actions

1. Residential uses in the Ryckmans multicentre will be developed through plans of subdivision and/or under site plan control agreements.

4.7 Neighbourhood Services

Objective

Neighbourhood services including parks, community and recreational facilities, pedestrian and bicycle pathways, and schools of appropriate size and type to meet the needs of neighbourhood residents will be provided.

Policies

1. The recreational functions of the Barton Community Park, Barton Community Centre, Hamilton Board of Education school site and Olmstead Indian Village will be integrated to the greatest extent possible.

2. The existing facilities in the Barton Community Centre will be retained in the interim period until new facilities are developed.

3. Linear park facilities including bicycle and pedestrian pathways will be established in a north-south orientation through the centre of the neighbourhood from Stone Church Road to Rymal Road.

4. The pedestrian and bicycle pathways will be linked to the neighbourhood's internal street system.

5. The Olmstead Indian Village will be acquired and retained for passive outdoor recreation use until it is developed for archeological and interpretive purposes by an appropriate public agency.

6. Additional park, recreational and institutional uses will be considered for inclusion in the neighbourhood on an individual basis.

7. The small City of Hamilton cemetery and access easement which are located in the west central area of the neighbourhood will be retained. New access will be provided to this cemetery from the internal road system when the neighbourhood develops. Additional lands surrounding this cemetery will be acquired for buffering as needed.

Actions

1. The Olmstead Indian Village area will be purchased or acquired as part of the parkland dedication for a plan of subdivision.

2. The City will request the Board of Education to permit community use of the Board's property.

3. The City will initiate Official Plan amendments to relocate the existing Open Space and Major Institutional designations as the neighbourhood develops.

4. The City will investigate the size, type and location of community recreational facilities, including a new community centre, which are appropriate for the Barton Community Park.

5. The City will allocate funds in its capital budget for the replacement of the swimming pool and wading pool or substitution of alternative facilities in the Barton Community Park.

4.8 Transportation

Objective

Safe, convenient and energy-efficient vehicular and pedestrian transportation facilities will be provided.

Policies

1. The internal street system will be designed to discourage through traffic on local streets.

2. The neighbourhood's interior will be served by a collector road which outlets onto Stone Church Road East and Upper Wellington Street. This collector road follows the "jigsaw concept" pattern which has been established for the Ryckmans, Jerome, Crerar and Barnstown neighbourhoods.

3. Principal outlets from the collector road will be provided onto Upper James Street and Rymal Road.

4. The street system will be designed for improved internal traffic flow with a minimum number of stops.

5. The street system will provide for the creation of residential lots along both sides of local streets where feasible.

6. The total length of the street systems will be minimized to conserve energy.

7. The internal street system will be designed in an east-west orientation to the greatest extent possible to provide optimum solar access for residential lands.

8. Pedestrian and bicycle paths will be established on existing public lands and created through the subdivision approval process.

9. New residential development along arterial roads will be insulated from excessive traffic noise with fences or berms as required.

10. Where possible, reverse frontage and/or combined accesses will be provided for new residential development or redevelopment along arterial roads.

Actions

1. Plans of subdivision will be approved where their street alignment matches or closely approximates the street alignment of the approved neighbourhood plan.

2. Traffic signals will be provided at the four locations where the collector road and principal outlet roads intersect the arterial roads.

4.9 Infrastructure

Objective

Development will occur subsequent to installation and availability of full municipal services.

Policies

1. The Ryckman's Neighbourhood will be designed for development on full municipal services, including water supply, sanitary sewers and piped storm water drainage.

2. The neighbourhood will be served by three separate sanitary sewer systems located in the north-east, central and south-east portions of the neighbourhood. Development in these areas will occur subsequent to installation of the sewers.

Actions

1. The combined storm and sanitary sewer will be constructed through the centre of Ryckmans neighbourhood during 1984.

2. A combined storm and sanitary sewer will be designed and constructed through the north-east portion of Ryckmans neighbourhood during 1987 and 1988.

3. Sewer services for the south-east portion of the neighbourhood will be designed and installed by private initiative after 1984.

4.10 Vegetation

Objective

Mature trees and other desirable vegetation will be retained and managed for amenity and energy conservation value on public and private lands where feasible.

Policies

1. Borders of mature trees around the Barton Community Park, Barton Community Centre, City lands and other public and institutional properties will be retained wherever possible. These borders will be managed to act as visual boundaries and as buffers to control shade and wind in accordance with good tree management.

2. Mature trees along arterial roads will be retained wherever possible during development of the neighbourhood.

3. Information and assistance will be provided to private property owners in establishing energy-conserving vegetation in residential areas.

Actions

1. Mature trees and other desirable vegetation will be retained wherever possible through the subdivision and condominium approval processes and through site plan control.

2. The City will establish treed boulevards along both sides of the collector road between Stone Church Road and Barton Community Park and along the principal outlet road between Rymal Road and the Olmstead Indian Village.

4.11 Urban Design Features

Objective

A unique neighbourhood character will be created through the inclusion of appropriate urban design features at focal points.

Policies

1. The intersection of Upper James Street and Rymal Road, traditionally known as "Ryckmans Corners" will be emphasized as the main "crossroads" in the south Mountain area.

2. New commercial development and landscaping on public lands along Upper James Street will be given special attention to help create a "corridor" or "entrance to Hamilton" effect.

3. Landmarks will be constructed in the Ryckmans neighbourhood interior. Examples of appropriate landmarks include a Neutral Indian symbol and a landscaped area which identifies the Ryckmans neighbourhood by name.

Actions

1. The City will consider the development of special design standards for commercial buildings, signage, parking areas and landscaping along Upper James Street.

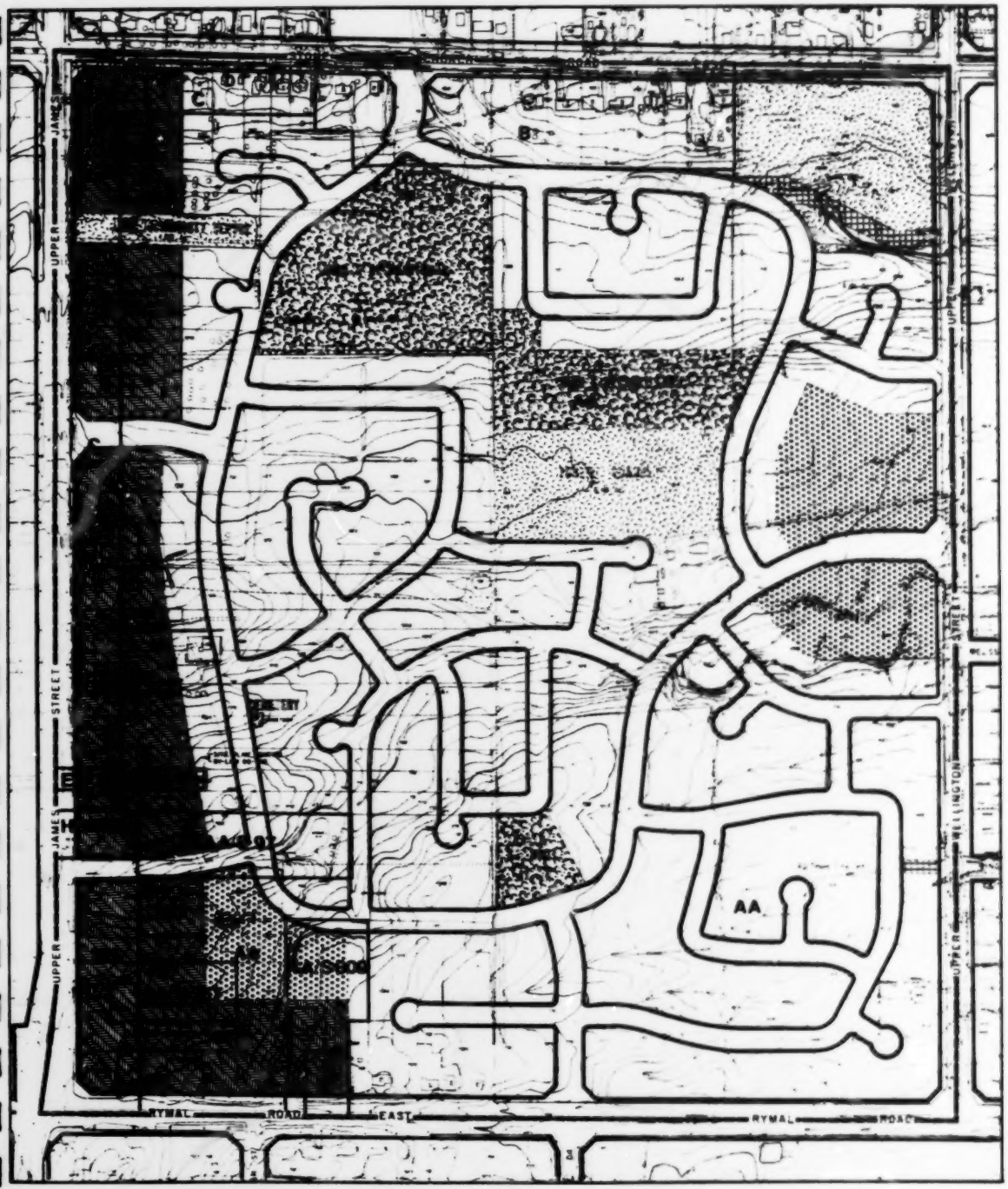
2. The City will consider special lighting, landscaping and planting treatments on public lands along Upper James Street.

3. The City, in co-operation with the Regional Municipality of Hamilton-Wentworth, will consider special road lighting and signage at the intersection of Upper James Street and Rymal Road.

4. The City will consider allocation of funds in its budget for the creation of landmarks in the north-central and south-central areas of Ryckmans neighbourhood as shown on Options C and D.

5. The collector road will be named Ryckmans Boulevard.

6. Information and assistance will be provided to the private sector in designing the landscaping and paving in residential culs-de-sac which emphasize pedestrian-oriented uses as their primary function with vehicular uses secondary, along the concept of the European "woonerf".



Option A was designed without regard for solar energy efficiency in December, 1980. The interior street system was oriented to the arterial road grid in similar fashion to other mountain neighbourhoods which were developed in the 1970's. Institutional property boundaries were left unchanged in this option. An irregular strip of land approximately 100 metres in depth along Upper James Street was designated for commercial and multiple residential use. Although the Olmstead Indian Village site was unknown to staff at the time, a small part was planned near the village.

LAND USE

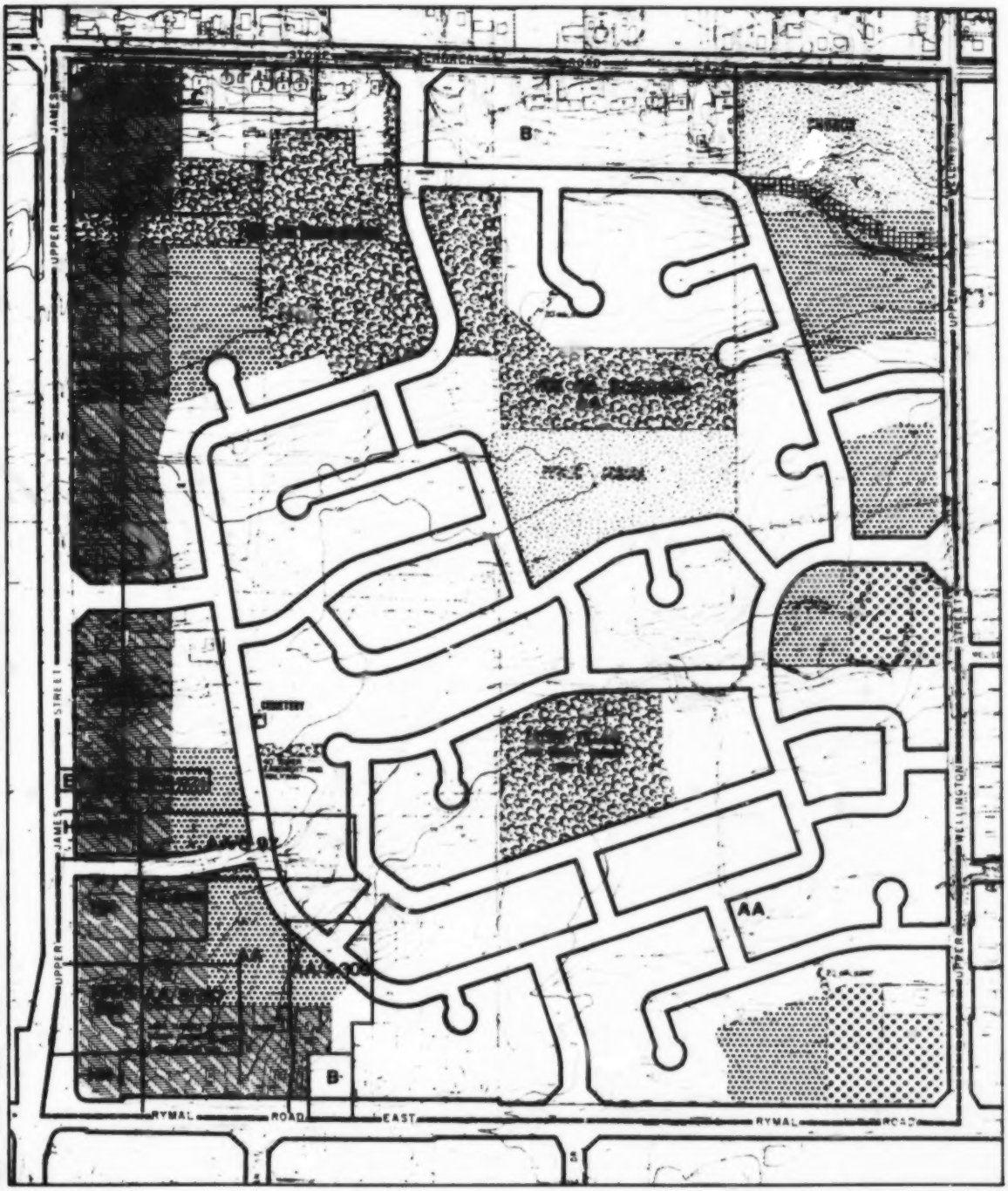
RESIDENTIAL
- single & double
- attached housing
- low density apts.
- medium density apts.
- high density apts.
- commercial & apts.

- COMMERCIAL
- INDUSTRIAL
- CIVIC & INSTITUTIONAL
- PARK & RECREATIONAL
- OPEN SPACE
- UTILITIES
- AREA SUBJECT TO UPP. JAMES-SOUTH MOUNTAIN AREA LAND USE STUDY

OPTION A

DESIGN CRITERIA FOR ENERGY EFFICIENT NEIGHBOURHOOD PLANNING - STAGE THREE

FIGURE 18



Option B represented the first attempt at integrating solar access with conventional neighbourhood planning opportunities and constraints. In this option, the interior street system was designed around the institutional property boundaries with modified east-west solar-oriented street alignments added where possible. A strip of land 91 metres in depth along Upper James Street and along a small portion of Rymal Road was identified as the subject of the Upper James - South Mountain Area study. The Olmstead Indian Village was shown as a separate passive park.

LAND USE

RESIDENTIAL

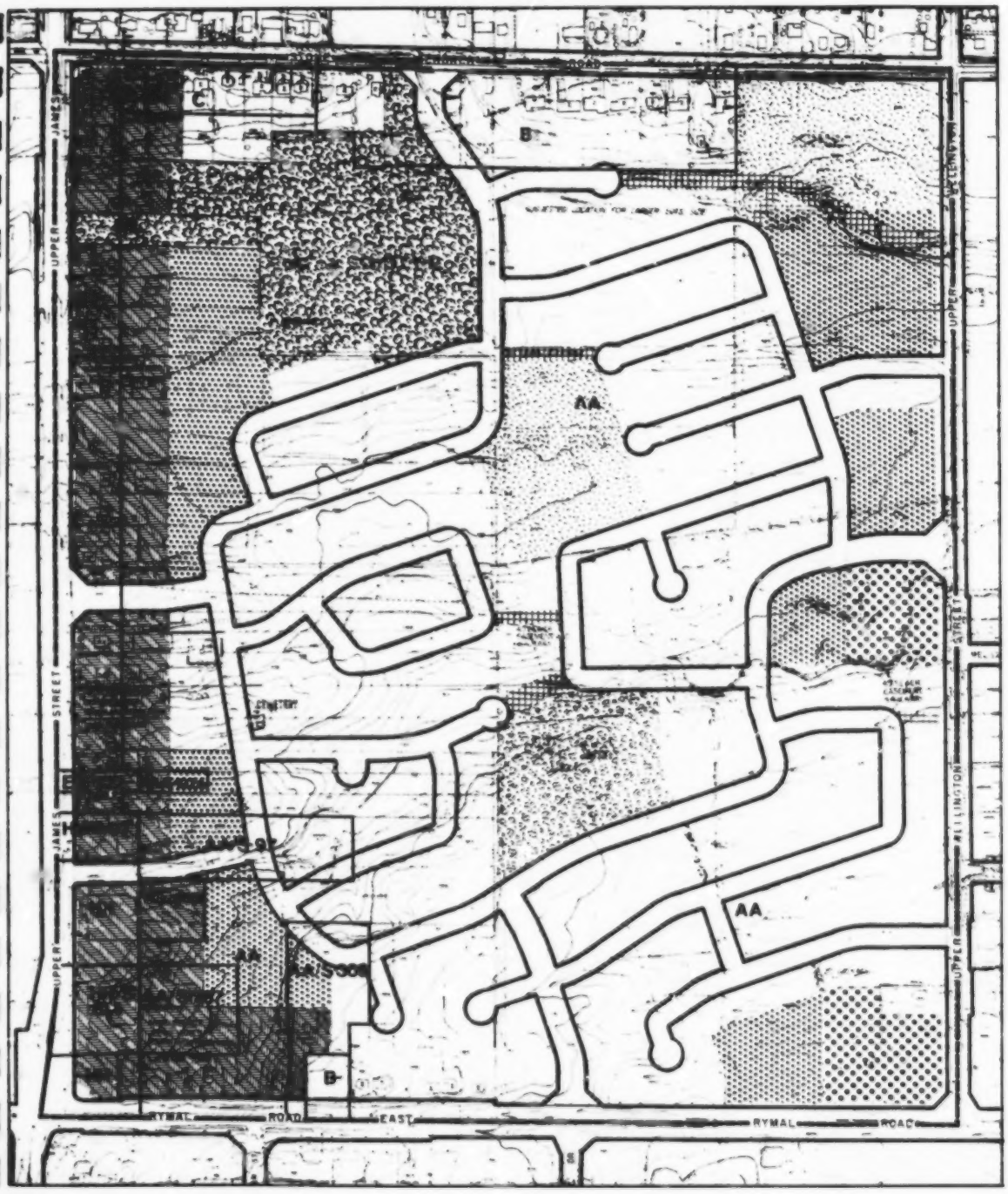
- single & double
- attached housing
- low density apts.
- medium density apts.
- high density apts.
- commercial & apts.

- COMMERCIAL
- INDUSTRIAL
- CIVIC & INSTITUTIONAL
- PARK & RECREATIONAL
- OPEN SPACE
- UTILITIES
- AREA SUBJECT TO UPP. JAMES-SOUTH MOUNTAIN AREA LAND USE STUDY

OPTION B

DESIGN CRITERIA FOR ENERGY EFFICIENT NEIGHBOURHOOD PLANNING - STAGE THREE

FIGURE 19



In Option C, the internal street system was modified to provide improved solar access. The existing Barton Community Centre and Community Park properties were enlarged and re-shaped to accommodate the street pattern. The Olmstead Indian Village was shown as a separate park property. A partial pedestrian-bicycle pathway was established through the centre of the neighbourhood in a north-south direction, linking the community park and Indian village. Urban design features were planned for the north and south central areas of the neighbourhood's interior. Lands along Upper James Street and Rymal Road were shown as a study area.

LAND USE

RESIDENTIAL
- single & double
- attached housing
- low density apts.
- medium density apts.
- high density apts.
- commercial & apts.

COMMERCIAL
INDUSTRIAL
CIVIC & INSTITUTIONAL
PARK & RECREATIONAL
OPEN SPACE
UTILITIES

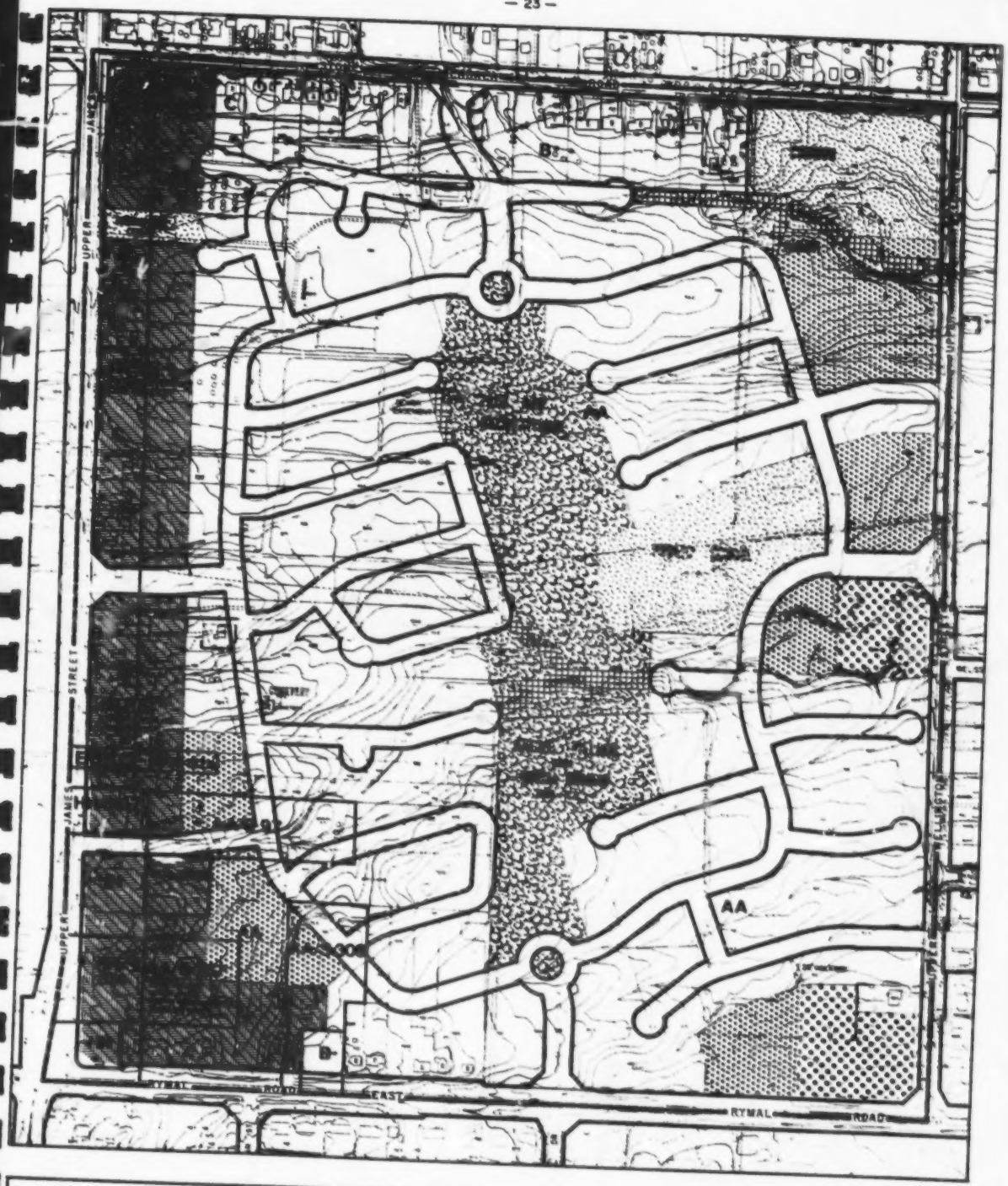
AREA SUBJECT TO UPP. JAMES-SOUTH MOUNTAIN AREA LAND USE STUDY

OPTION C

DESIGN CRITERIA FOR ENERGY EFFICIENT NEIGHBOURHOOD PLANNING - STAGE THREE

PREPARED FOR THE CITY OF HAMILTON BY THE PLANNING AND DEVELOPMENT DEPARTMENT OF THE REGIONAL MUNICIPALITY OF HAMILTON-WENTWORTH

FIGURE 20



Option D approaches the optimum neighbourhood design. In this option, opportunities for energy-efficient land use, linear recreation and urban design were emphasized. Constraints, including institutional property boundaries, were treated with flexibility. The Barton Community Centre was retained on a 0.5 hectare property on Upper James Street. The Barton Community Park, public school site and Indian village were reorganized into a long, narrow configuration in the neighbourhood's centre. Traffic roundabouts were planned around the urban design features. A continuous pedestrian-bicycle pathway including treed boulevards on the outlet roads were provided. Lands along Upper James Street and Rymal Road were shown as a study area.

LAND USE

RESIDENTIAL
- single & double
- attached housing
- low density apts.
- medium density apts.
- high density apts.
- commercial & apts.

COMMERCIAL

INDUSTRIAL

CIVIC & INSTITUTIONAL

PARK & RECREATIONAL

OPEN SPACE

UTILITIES

AREA SUBJECT TO UPP. JAMES-SOUTH MOUNTAIN AREA LAND USE STUDY

OPTION D

DESIGN CRITERIA FOR ENERGY EFFICIENT NEIGHBOURHOOD PLANNING - STAGE THREE

PREPARED FOR THE CITY OF HAMILTON BY THE PLANNING AND DEVELOPMENT DEPARTMENT OF THE REGIONAL MUNICIPALITY OF HAMILTON-WENTWORTH

FIGURE 21

5. OFFICIAL PLAN AMENDMENT NO. 14

5.1 Introduction

An amendment to the City of Hamilton Official Plan to incorporate energy planning policies on a City-wide basis constitutes the second portion of the Stage III report.

The City's Official Plan already emphasizes energy conservation in several subsections including A.2 Land Use, B.2 Engineering Services and C.7 Residential Environment and Housing Policy. The proposed amendment will establish additional, specific energy policies in subsections B.3 Circulation and Movement System and C.8 Energy. These policies are intended to:

i) improve the layout of the street system to achieve energy efficiency;

ii) encourage employment opportunities in the developing areas of the City to reduce work-to-home journeys;

iii) identify specific energy efficient criteria, such as climatic data; and,

iv) require certain features, such as proper siting of trees and other plant material, which achieves energy efficiency, to be incorporated in development and/or redevelopment proposals, where possible.

The current Official Plan Section C.8 Energy policies and the proposed new policies (Official Plan Amendment No. 14) are shown below.

5.2 Existing Policies

Subsection C.8 - Energy

It is the intent of this Plan to promote ENERGY conservation in all areas of the City. Accordingly, development will be encouraged which minimizes ENERGY consumption and emphasizes the use of renewable ENERGY sources.

8.1 To promote ENERGY efficiency in the growth and management of the City, Council will endeavour to achieve the following:

i) Investigate and evaluate existing development practices and identify where new and innovative ENERGY efficiency measures, such as the use of the sun as an ENERGY source, can be introduced by the development industry;

ii) Encourage proponents of future development and/or redevelopment to adopt, and incorporate in their proposals, ENERGY saving measures to optimize the use of ENERGY sources;

iii) Seek legislative powers to require design criteria in development and redevelopments that ensure ENERGY conservation;

iv) Formulate ENERGY-oriented planning policies, with particular emphasis on mixed use, compact and higher-density development and any other ENERGY-efficient development forms;

v) Co-operate with the appropriate public and private agencies to inform the public of ENERGY concerns and promote ENERGY conservation;

vi) Co-operate with other levels of government and private industry to access the merit of new and innovative ENERGY conserving measures applicable to the City;

vii) Promote the reduction of ENERGY consumption and dependency on non-renewable ENERGY sources, particularly in all City-owned, maintained, and/or operated facilities;

viii) Encourage greater use of Public Transit facilities as a means of conserving ENERGY; and,

ix) Co-operation with the Region to develop an efficient waste recycling program to protect and conserve the supply of natural resources and ENERGY.

5.3 Official Plan Amendment No. 14

B.3 - Circulation and Movement System

New Policy
B.3.1.19
It is the intent of Council to improve the design of Roads by accommodating traffic control devices, which would enhance the free flow of vehicular traffic and improve their energy efficiency.

C.8 - Energy
"Further, it is the intent of this Plan to encourage employment opportunities in developing Planning Units to reduce the work-to-home journeys".

New Policy
C.8.2
Council will require that new residential areas of the City be planned in an energy efficient manner. Accordingly, it is intended that in the preparation of Neighbourhood Plans, the following criteria be utilized to establish an energy efficient land use pattern:

i) Define the energy characteristics of the environment and land form including surface features and drainage patterns by:

a) utilizing climatic data, such as, but not limited to, air quality, temperature fluctuations, hours of sunlight, heating and cooling degree days, precipitation and wind speed frequency/direction;

b) constructing a topographic profile including slope gradient and orientation; and,

c) evaluating all natural and man-made features;

ii) Design a street pattern by:

a) aligning Local Roads in a direction that maximizes the use of direct solar energy;

b) minimizing the length of Local Roads and reducing pavement widths;

c) limiting the number of access points from Collector Roads to Arterial Roads; and,

iii) Distribute housing types in a manner that would maximize energy conservation.

New Policy
C.8.3
Council will require that in the design of any development and/or redevelopment proposals, the following features be incorporated, where possible:

i) the orientation of buildings in a manner that maximizes the use of direct solar energy;

ii) the elimination or reduction of shadow casting onto adjacent existing and approved buildings; and,

iii) the utilization and proper siting of plant material, having regard to their shadow casting and wind breaking abilities.

6. FUTURE PLANNING STAGES

The Stage III report, when approved by Planning and Development Committee and by City Council, will be forwarded to the Ministry of Municipal Affairs and Housing to complete the Design Criteria for Energy Efficient Neighbourhood Design project. The planning process for the Ryckmans neighbourhood will continue. The Ryckmans neighbourhood Background Report identified opportunities and constraints in planning the neighbourhood. The information which was presented in the Background Report served as a basis for preparation of design concept Options B, C and D and the objectives, policies and recommended actions which are presented here. Design concept Option D will be circulated to City and Regional Departments for their consideration and comments. The public will also be invited to comment on Option D and the objectives, policies and recommended actions.

Based on these inputs and on the completed Upper James-South Mountain Area Study which will identify future commercial uses, planning staff will prepare a draft Neighbourhood Plan. The plan will be circulated to City and Regional departments. A further public meeting will be held and the public will be invited to submit written comments on the Plan. Staff will prepare a final report on the plan and the written submissions and present it to the Planning and Development Committee. Once approved by the Committee, the Neighbourhood Plan will be forwarded to City Council for consideration and subsequent adoption.

The final plan will be implemented through a combination of Official Plan and zoning by-law amendments, and site plan controls as required. Completion of the plan will also permit installation of public and private utilities and infrastructure. The Ryckmans Neighbourhood Plan, like other Neighbourhood Plans in Hamilton, is approved by City Council as City policy. These plans are not approved by the Provincial Ministry of Municipal Affairs and Housing and are not legally binding under the Planning Act. However, general elements of the Neighbourhood Plan are also incorporated into the Official Plan which is approved by the Ministry of Municipal Affairs and Housing and has legal status.

Neighbourhood Plans are important because they have been developed with full public participation and the involvement of relevant City and Regional Departments. Approved Neighbourhood Plans express Council policy and guide Council's decisions on development proposals in the neighbourhood.